

In the Claims

162 1. (Original) A diaphragm assembly for being connected between an engine exhaust path and an engine control unit, said diaphragm assembly comprising:

a diaphragm housing; and (5)

a diaphragm positioned in said housing and separating a first chamber and a second chamber, said first chamber configured to be in flow communication with the engine exhaust path, and said second chamber configured to be in flow communication with the engine control unit.

162 2. (Original) A diaphragm assembly in accordance with Claim 1 wherein said diaphragm housing comprises a first housing member and a second housing member, said diaphragm between said first and second housing members.

162 3. (Original) A diaphragm assembly in accordance with Claim 2 wherein an inner surface of said first housing member also is a side wall of said first chamber, said inner surface having a conical shape to facilitate drainage of water from said first chamber.

162 4. (Original) A diaphragm assembly in accordance with Claim 1 wherein said first chamber comprises a first column and said second chamber comprises a second volume, said first volume greater than said second volume.

5. (Original) A diaphragm assembly in accordance with Claim 1 wherein said diaphragm comprises an o-ring and a diaphragm member integral with said o-ring.

6. (Original) A diaphragm assembly in accordance with Claim 5 wherein said o-ring and said diaphragm member are fluorosilicone.

163 7. (Original) A diaphragm assembly in accordance with Claim 5 wherein said diaphragm housing comprises an o-ring groove for receiving said o-ring.

8. (Original) A diaphragm assembly in accordance with Claim 5 wherein said diaphragm housing comprises a first housing member and a second housing member, said first and second housing members each comprising an o-ring groove so that when said housing

members are assembly, said diaphragm o-ring is trapped between said first and second housing members in said grooves.

Claims 9 - 20 (Cancelled)

162 21. (Original) A method for securing a diaphragm assembly to an engine, said method comprising the steps of:

coupling an inlet of the diaphragm assembly in flow communication with an exhaust path of the engine; and ~~8 to (9)~~ 10 3 3

coupling an outlet of the diaphragm assembly to an electronic control unit of the engine. {8 10 9 10 5} ~~(5) 10 (8)~~

103 22. (Original) A method in accordance with Claim 21 wherein coupling an inlet of the diaphragm assembly in flow communication with an exhaust path of the engine comprises the steps of:

at least partially inserting a probe through an opening in the engine;

securing the probe in place so that at least a portion of the probe extends into an exhaust path of the engine;

engaging one end of a tube to the probe so that during engine operation, exhaust pulses sensed by the probe are transmitted through the probe to the tube; and

engaging a second of the tube to the inlet of the diaphragm assembly.

23. (Original) A method in accordance with Claim 22 wherein securing the probe in place comprises the step of threadedly engaging the probe within an opening in the engine.

24. (Currently Amended) Apparatus for sensing changes in exhaust gas pressure during engine operation, said apparatus comprising diaphragm means configured to be coupled between an exhaust path of the engine and an electronic engine-control unit and for transmitting exhaust pulses to the electronic control unit.

25. (Currently Amended) Apparatus in accordance with Claim 24 wherein said diaphragm means comprises a diaphragm housing, and a diaphragm positioned in said housing and separating a first chamber and a second chamber, said first chamber configured to be in flow

communication with the engine exhaust path, and said second chamber configured to be in closed flow communication with the engine~~electronic~~ control unit.

26. (Original) Apparatus in accordance with Claim 25 wherein said diaphragm housing comprises a first housing member and a second housing member, said diaphragm between said first and second housing members.

27. (Original) Apparatus in accordance with Claim 25 wherein an inner surface of said first housing member also is a side wall of said first chamber, said inner surface having a conical shape to facilitate drainage of water from said first chamber.

28. (Previously Presented) Apparatus in accordance with Claim 24 further comprising probe means for sensing exhaust gas pressure during engine operation, and engagement means secured to said probe means for securing said probe means so that said probe means at least partially extends within an exhaust path of the engine during engine operation.

29. (Original) Apparatus in accordance with Claim 28 wherein said probe means comprises an elongate probe body comprising a hollow, cylindrical shaped member.

30. (Original) Apparatus in accordance with Claim 29 wherein said cylindrical shaped member comprises at least one opening through a side wall of said cylindrical shaped member.

31. (Original) Apparatus in accordance with Claim 30 wherein three openings extend through said cylindrical shaped member side wall, said openings being radially spaced about 120° apart from each adjacent opening.

32. (Original) Apparatus in accordance with Claim 29 wherein said elongate probe body further comprises a cap secured to and closing an open end of said cylindrical shaped member.

33. (Original) Apparatus in accordance with Claim 28 further comprising a pellet located within said probe means.

34. (Original) Apparatus in accordance with Claim 33 wherein said pellet comprises sintered metal.

35. (Original) Apparatus in accordance with Claim 28 wherein said engagement means comprises an engine engagement assembly secured to said probe means and configured to engage to the engine so that said probe means at least partially extends into the engine exhaust path.

36. (Original) Apparatus in accordance with Claim 35 wherein said engine engagement assembly comprises a threaded portion sized to be threadedly engaged within an opening in flow communication with the engine exhaust path.

Claims 37 - 46 (Cancelled)

37
47. (Original) A kit for a marine engine, comprising a diaphragm assembly comprising a diaphragm housing, and a diaphragm positioned in said housing and separating a first chamber and a second chamber, said first chamber configured to be in flow communication with an engine control unit, and said second chamber configured to be in flow communication with an engine exhaust path.

102
48. (Original) A kit in accordance with Claim 47 wherein said diaphragm housing comprises a first housing member and a second housing member, said diaphragm between said first and second housing members.

49. (Original) A kit in accordance with Claim 48 wherein an inner surface of said first housing member also is a side wall of said first chamber, said inner surface having a conical shape to facilitate drainage of water from said first chamber.

50. (Original) A kit in accordance with Claim 47 wherein said first chamber comprises a first volume and said second chamber comprises a second volume, said first volume greater than said second volume.

51. (Original) A kit in accordance with Claim 47 wherein said diaphragm comprises an o-ring and a diaphragm member integral with said o-ring.

52. (Original) A kit in accordance with Claim 47 further comprising a probe for being secured to the marine engine, said probe comprising an elongate probe body, and an engine engagement assembly secured to said probe body and configured to engage to the engine so that said probe body at least partially extends into the engine exhaust path.

53. (Original) A kit in accordance with Claim 52 wherein said elongate probe body comprises a hollow, cylindrical shaped member comprising at least one opening through a side wall of said cylindrical shaped member.

54. (Original) A kit in accordance with Claim 53 wherein three openings extend through said cylindrical shaped member side wall, said openings being radially spaced about 120° apart from each adjacent opening.

55. (Original) A kit in accordance with Claim 52 wherein said elongate probe body further comprises a cap secured to and closing an open end of said cylindrical shaped member.

56. (Original) A kit in accordance with Claim 52 further comprising a pellet located within said probe body.

57. (Original) A kit in accordance with Claim 56 wherein said pellet comprises sintered metal.